(54) Title: DATA LINE SWITCH

(57) Abstract: A switch box (named a security switch) comprises a housing with a manually and/or automatically activated ON/OFF switch for a phone and/or data line connected through the switch box. A user can disconnect his computer from the Internet to eliminate hacking when the computer is not in use. A simple push/pull lever moves any available type of male/female plug from a connect to a disconnect mode. A multi-wire version is shown. A future advanced electronic filter is shown which automatically replaces confidential data like a social security number with a set of dummy data while browsing on the Internet.

1   **TITLE**
2   Data Line Switch

3

4   **FIELD OF INVENTION**
5   The present invention relates to a switch to manually
6   and/or automatically disconnect any type of data line
7   (coaxial, dial up, DSL, fiber optics, ethernet), from a data
8   communications device and/or a computer primarily for
9   security reasons.

10

11   **BACKGROUND OF THE INVENTION**
12   From its infancy to the present, the Internet has
13   exploded into being an integral part of a consumer's daily
14   life. As usage and access to the Internet increases so will
15   the demand for easier and faster Internet capabilities.
16   Internet services providing access to the Internet through
17   technologies such as CABLE and DSL modems are a clear choice
18   to meet this demand. Unfortunately, these technologies
19   generate a security risk to the user. In order to provide
20   easy access, speedy web browsing and downloading, CABLE and
21   DSL services operate as an "always ON" system. The threat
22   of potential intrusion from outside sources will be high.
23   Sensitive data including social security number, credit card
24   numbers and expiration dates, even bank account data is

1   sitting live and vulnerable and waiting to be tapped by

2   unauthorized outside intruders.

3   Therefore, it is the objective of the present invention

4   to provide the capability to protect private/personal data

5   by conveniently connecting to the Internet when in use and

6   to conveniently disconnect from the Internet when not in

7   use.

8   The above objectives are met by the mechanism of the

9   present invention which provides a user the convenient,

10   easy, and effective method of connecting and disconnecting

11   from the Internet network. Additionally, this invention

12   provides security to a computer that is on but not being

13   monitored or used. Furthermore, this invention will further

14   provide the capability to browse the Internet without any

15   identifiable trace to the user.

16   The basic system disclosed herein physically

17   disconnects a data line from a computer modem. Listed below

18   are other electrical wire switches.

19   Horn '786 teaches a mechanical key which turns in a

20   box, wherein the box contains two ends of a cable. Turning

21   the key ON connects the four (or more) conductors. Turning

22   the key OFF disconnects all the conductors. A collar

23   prevents bypassing the lock so that parents can lock out a

24   child from access to the Internet. There is no suggestion

25   of a switch to handle coaxial and other cabling with a

1   simple security type of on/off switch nor a phone line

2   switch without a key.

3   Flowers '543 discloses a lock switch on a phone jack.

4   The device has a rotatable lock with a contact arm to

5   disconnect a standard phone line with a key. The purpose is

6   to prevent phone calls on the line while the device is

7   locked. No suggestion exists to provide a coaxial switch

8   nor a phone line switch without a key.

9   The present invention offers a simple push/pull lever

10   to disconnect any type of data line from a computer, without

11   a key, to prevent hacking into the computer. A second

12   embodiment provides an electronic filter to sanitize

13   outgoing data for the Internet user who is browsing, so that

14   sensitive data such as a social security number is not

15   needlessly sent all over the world while a user browses.

16

17   SUMMARY OF THE INVENTION

18   The main aspect of the present invention is to provide

19   a simple switch which an Internet user can switch ON/OFF

20   with any type of data line connection.

21   Another aspect of the present invention is to provide

22   an electrical/mechanical relay version of the switch.

23   Another aspect of the present invention is to provide a

24   monitoring system having an electronic filter for outgoing

25   data, thereby sanitizing confidential data while browsing on

1   the Internet. Thus, the user must specifically authorize

2   the release of confidential data such as to perform a

3   purchase.

4   The manual connect/disconnect process can be upgraded

5   and replaced with an electrical automatic or manual method.

6   Using developed software application tools and integrating

7   them into the computer (desktop), the user will have the

8   capability to configure the mode of operation for this

9   invention through a "pop up window". The user will have the

10 capability to easily configure the invention to operate

11 under an "AUTO" or "Manual" mode condition. In "AUTO" mode,

12 connection to the Internet will be automatic as soon as any

13 "key" on the keyboard is pressed. Additionally, the user

14 can program the device to automatically disconnect from the

15 Internet if selected time intervals without network activity

16 has passed (seconds, minutes, hours).

17   Other aspects of this invention will appear from the

18 following description and appended claims, reference being

19 made to the accompanying drawings forming a part of this

20 specification wherein like reference characters designate

21 corresponding parts in the several views.

22

23

1   BRIEF DESCRIPTION OF THE DRAWINGS

2   FIG. 1 is a schematic view of the security switch

3   showing the wide range of computer communication types the

4   device can handle.

5   FIG. 2A (prior art) is a front perspective view of a

6   female phone line or DSL plug.

7   FIG. 2B (prior art) is a top perspective view of the

8   male plug for the FIG. 2A plug.

9   FIG. 3 (prior art) is a front perspective view of a

10   double female plug for the phone line of FIG. 1.

11   FIG. 4 is a top perspective view of the FIG. 2B plug

12   with a quick release boot.

13   FIG. 5A is a front perspective view of an ethernet

14   female plug.

15   FIG. 5B is a top perspective view of an ethernet male

16   plug.

17   FIG. 6A is a side perspective view of a fiber optic

18   male plug.

19   FIG. 6B is a side perspective view of a fiber optic

20   female plug.

21   FIG. 7 is a top plan view of the preferred embodiment

22   security switch.

23   FIG. 8 is a longitudinal cross sectional view taken

24   along line 8-8 of FIG. 7

1   FIG. 9 is the same view as FIG. 8 with the switch

2   closed.

3   FIG. 10 is a partial cutaway view of the preferred

4   embodiment shown in FIG. 8

5   FIG. 11 is a longitudinal sectional view of an

6   alternate embodiment using a relay switch.

7   FIG. 12A (prior art) is a top perspective view of a

8   coaxial cable with a male B & C connector.

9   FIG. 12B (prior art) is a top perspective view of the

10   female B & C type connector for the FIG. 12A connector.

11   FIG. 13 (prior art) is a top perspective view of a

12   coaxial cable female/female bulkhead connector.

13   FIG. 14 is a longitudinal sectional view of the FIG. 10

14   switch connected to the female bulkhead coaxial connector.

15   FIG. 15 is the same view as FIG. 14 with the switch in

16   the closed position.

17   FIG. 16 is a top perspective partial cutaway view of

18   the FIG. 14 device.

19   FIG. 17 is a longitudinal sectional view of an

20   alternate embodiment having a two data circuit

21   connect/disconnect capability.

22   FIGS. 18 and 19 are a flow chart of the logic behind an

23   alternate embodiment electronic output data monitoring and

24   filtering system.

1   FIG. 20 is a sectional view of an alternate embodiment

2 electro mechanical switch.

3   Before explaining the disclosed embodiment of the

4 present invention in detail, it is to be understood that the

5 invention is not limited in its application to the details

6 of the particular arrangement shown, since the invention is

7 capable of other embodiments. Also, the terminology used

8 herein is for the purpose of description and not of

9 limitation.

10

11   DESCRIPTION OF THE PREFERRED EMBODIMENT

12   Referring first to FIG. 1 a computer 1 has a modem 2.

13 The modem 2 is connected to the security switch 3 via wire

14 4. The wire 5 can be any type of data medium connection to

15 be compatible with a plug including a coaxial cable male

16 plug 121, a regular phone or DSL male plug 201, a fiber

17 optic male plug 600, or an ethernet male plug 501. The

18 female plugs are labeled 122, 200, 601, 500, and are located

19 in a wall 10. The Internet provider 65 is connected to the

20 wall mounted plug via an appropriate wire 61, 62, 63, 64.

21   Whatever the connection the user has chosen, the

22 security switch 3 can be adapted to handle the plugs in

23 order to disconnect the modem 2 from the wall plug.

24 Normally only one wall plug connection is chosen by a user.

1   However, multiple connections are possible. The embodiment

2   of FIG. 17 can handle any number of multiple wall plugs.

3   Referring next to FIG. 2A a female phone jack 200 is

4   shown. There are usually 6 wires 202 handled within the

5   phone jack 200. The male phone jack 201 is shown in FIG.

6   2B. The wire 203 can be a regular phone line or a DSL line.

7   FIG. 3 shows a double female plug 204. Plug 204 has

8   female cavities 205, 206.

9   FIG. 4 shows the male plug 201 outfitted with a quick

10   release boot 207, the combination labeled 2017. The boot

11   207 has a pocket 208 which holds down the release tab 209

12   permanently in the release position.

13   Referring next to FIGS. 5A, 5B an ethernet line 502 has

14   a male plug 501 and a female plug 500. These standard plugs

15   can be substituted in the FIG. 8 and/or FIG. 17 and/or FIG.

16   20 embodiments.

17   Referring next to FIGS. 6A, 6B a fiber optic line 602

18   has a male plug 600 and a female plug 601. These standard

19   plugs can be substituted in the FIG. 8 and/or FIGS. 17, 20

20   embodiments also. Thus, any data medium and plug type can

21   be handled by the present invention switch box.

22   FIG. 7 is a top plan view of the preferred embodiment,

23   switch box 100. An enclosure 105 supports a first double

24   female plug 204A and a second identical double female plug

25   204B at opposite ends of the enclosure 105. FIGS. 8,9 show

1   a push/pull mechanism 101 connecting and disconnecting the

2   combo plug 2017 from the double female plug 204A. The phone

3   line 203 is permanently plugged into double female plug 204B

4   via male plug 201.

5   A rail 70 is permanently mounted inside the enclosure

6   105. A shoe 71 slides along the rail 70. The push/pull

7   switch 101 connects to the shoe 71 via transition member 72.

8   A plug retainer 73 also is connected to the shoe 71.

9   Using standard plugs and simple parts and not requiring

10   a locking key, a user can reliably disconnect his computer

11   from a data line at will as shown in FIG. 8. He can easily

12   re-connect his data line as shown in FIG. 9. FIG. 10 shows

13   how simple plastic parts can be screwed and/or glued

14   together to house the standard phone plugs.

15   Referring next to FIG. 11 an alternate embodiment 1100

16   switch box is shown in cross sectional view. The switch box

17   1100 functions the same as switch box 100. Here the wire

18   203 with any number of leads (normally 6) terminates inside

19   a data transfer relay 1102 (nominally a C & K Components,

20   Inc., part number S10103155030). The prior art data

21   transfer relay 1102 has 6 or more individual switches which

22   simultaneously connect and disconnect by activation of the

23   slider switch 1103.

1   Referring next to FIG. 12A a standard coaxial cable

2 (RG6) labeled 120 is connected to a standard male coaxial

3 plug 121. FIG. 12B shows the matching female plug 122.

4   FIG. 13 shows a double female bulkhead connector plug

5 133.

6   Referring next to FIGS. 14, 15, 16 the standard coaxial

7 cable 137, and standard plugs 133A, 133B function the same

8 as like parts from FIGS. 8, 9, 10. Switch box 1000

9 functions the same as switch box 100. The slight hardware

10 change from the FIGS. 8, 9 embodiment is a changed plug

11 retainer 730. Not shown is an equivalent switch box holding

12 the plugs shown in FIGS. 12A, 12B.

13   Referring next to FIG. 17 an alternate embodiment

14 switch box 2000 handles two data lines simultaneously. More

15 than two data lines are easily handled by expanding the plug

16 retainer 7300 and adding double female plugs to the housing

17 1050.

18   The switch box 2000 uses the same push/pull handle 101

19 to open/close two data lines, the line 137 and the line 203.

20   Referring next to FIGS. 18, 19 a logic flow chart for

21 an advanced alternate embodiment is shown, wherein the

22 system is labeled 1929. System 1929 may either replace a

23 switch box or work in conjunction with a switch box.

24   System 1929 may exist as a modem logic extension and/or

25 within an I/O card in the computer 1 and/or in

1   software/firmware in the computer 1, and/or in the security

2   switch 3 of FIG. 1.

3   The functionality of system 1929 provides the user the

4   capability to protect their privacy when utilizing the

5   Internet for web browsing and downloading. The intent for

6   this invention is to monitor all incoming data and "filter"

7   out selected outgoing personal data. All outgoing data with

8   personal data will be captured and sanitized. An

9   unauthorized intruder or a service receiving the data will

10   be provided with pre-determined data (called dummy data)

11   with correct format but will be useless for the intruder.

12   The numbered logic blocks function as follows:

13   1.   Power up (start).

14   2.   Constant I/O network data monitoring.

15   3.   Connected to Internet?

16   3a. Answer NO ... go to 2

17   3b. Answer YES... go to 4

18   4.   Is computer configure to "auto" mode?

19   4a. Answer NO... go to 21

20   4b. Answer YES...go to 5

21   5.   Is there any I/O network data activity?

22   5a. Answer NO... go to 4

23   5b. Answer YES... go to 6

24   6.   Is data incoming?

25   6a. Answer NO... go to 9

1   6b.   Answer YES... go to 7

2   7.   Process data accordingly and go to 8.

3   8.   Run.

4   9.   Is data outgoing?

5   9a.   Answer NO... go to 5

6   9b.   Answer YES... go to 10

7   10. Is there any file(s) with personal data detected?

8   10a. Answer NO... go to 11

9   10b. Answer YES... go to 12

10   11. Release file(s).

11   12. Capture data and go to 13.

12   13. Open and read file(s).

13   13a. Answer NO... go to 16

14   13b. Answer YES... go to 14

15   14. Extract, replace, and install "predetermine" data

16   without changing data packet format. Go to 15.

17   15. Release data.

18   16. Copy file(s) ... go to 17.

19   17. Open and read file(s).

20   17a. Answer NO... go to 18

21   17b. Answer YES... go to 19

22   18. Dump original and copied file(s).

23   19. Extract, replace and install "predetermine" data

24   without changing data packet format. Go to 20.

25   20. Release data.

1   21. Is computer configure to "manual" mode?

2   21a. Answer NO... go to 4

3   21b. Answer YES... go to 22

4   22. Is there any I/O network data activity?

5   22a. Answer NO... go to 4

6   22b. Answer YES... go to 23

7   23. Is data incoming?

8   23a. Answer NO... go to 26

9   24b. Answer YES... go to 24

10   24. Process data accordingly and go to 25.

11   25. Run.

12   26. Is data outgoing?

13   26a. Answer NO... go to 22

14   26b. Answer YES... go to 27

15   27. Do you want to release personal data?

16   27a. Answer NO... go to 28

17   28b. Answer YES... go to 29

18   28. Dump data

19   29. Run and release data.

20   Referring next to FIG. 20 an alternate embodiment

21 security switch 2020 has replaced the manual push/pull

22 switch 101 with an electro mechanical assembly 2021.

23 Assembly 2021 comprises a linear motor 2022 (or a solenoid

24 and the like), a linkage 2023, and a motor controller 2024.

25 The motor controller 2024 may have a manual button 2025 to

1   allow the user to activate the motor controller 2024 with

2   the touch of a button.

3   Additionally or in place of the button 2025 a control

4   interface (wire, infra red, radio signal and the like) 2026

5   connects the computer 1 to the motor controller 2024.

6   The computer may contain a graphical user interface

7   (GUI) to allow the user to configure his choices of how to

8   switch the motor controller 2024 ON/OFF, and/or AUTO/Manual

9   operation. An example could be to type a code word like

10 "disconnect" to turn the switch OFF.

11   The GUI could also configure and control the system

12 1929's operational modes.

13   Although the present invention has been described with

14 reference to preferred embodiments, numerous modifications

15 and variations can be made and still the result will come

16 within the scope of the invention. No limitation with

17 respect to the specific embodiments disclosed herein is

18 intended or should be inferred.

19

20

1   I CLAIM:

2   1.   A data line switch comprising:

3   a data medium capable of carrying electronic

4   information between a computer and a device;

5   a switch device operably coupled with the data

6   medium;

7   wherein said switch device further comprises a

8   connected and a disconnected mode;

9   said disconnected mode further comprising a physical

10   retraction of an industry standard first

11   connector from an industry standard second

12   connector; and

13   said connected mode further comprising a physical

14   connection between the first and the second

15   industry standard connectors.

16   2.   The switch of claim 1, wherein the switch further

17 comprises a manually activated push/pull handle connected to

18 a sliding bracket which holds the first connector.

19   3.   The switch of claim 2, wherein the switch further

20 comprises a housing which holds the second connector as well

21 as an outlet connector.

22   4. The switch of claim 3, wherein the sliding bracket

23 is mounted on a track.

24   5.   The switch of claim 4, wherein the push/pull handle

25 is mounted parallel to the track.

1   6.   The switch of claim 5, wherein the outlet connector

2   and the second connector each are double female bulkhead

3   connectors, and a wire is connected between the first

4   connector and the outlet connector.

5   7.   The switch of claim 6, wherein all the connectors

6   are phone line connectors.

7   8.   The switch of claim 6, wherein all the connectors

8   are coaxial connectors.

9   9.   The switch of claim 6 further comprising a second

10   set of double bulkhead connectors in the housing, and a

11   second "first connector" attached to the sliding bracket,

12   providing a second ON/OFF connection through the housing.

13   10. A data line switch comprising:

14   a data medium capable of carrying electronic

15   information between a computer and a device;

16   a switch device operably coupled with the data

17   medium;

18   wherein said switch device further comprises a

19   connected and a disconnected mode;

20   said disconnected mode further comprising a relay

21   having multiple wire open/close switches having

22   an open mode;

23   said connected mode further comprising closed mode

24   for the open/close switches; and

25   a slide switch to control the modes.

1   11. A data line switch comprising:

2   a data medium capable of carrying electronic

3   information between a computer and a device;

4   a switch device operably coupled with the data

5   medium;

6   wherein said switch device further comprises a

7   connected and a disconnected mode;

8   said disconnected mode further comprising a physical

9   retraction of an industry standard first

10   connector from an industry standard second

11   connector;

12   said connected mode further comprising a physical

13   connection between the first and the second

14   industry standard connectors;

15   wherein the switch further comprises a powered

16   actuator connected to a sliding bracket which

17   holds the first connector; and

18   a housing holding the second connector as well as an

19   outlet connector.

20   12. The switch of claim 11 further comprising a push

21   button activated controller to move the actuator from and to

22   an ON/OFF position.

23   13. The switch of claim 11 further comprising a control

24   link from the computer to the actuator to enable a computer

25   controlled activation of the actuator.

1   14.   The switch of claim 13 further comprising a push

2   button activated controller fro the actuator.

3   15.   A data line switch comprising:

4   a data medium capable of carrying electronic

5   information between a computer and a device;

6   a switch device operably coupled with the data

7   medium;

8   wherein said switch device further comprises a

9   connected and a disconnected mode;

10   said disconnected mode further comprising a physical

11   retraction of a first connector from a second

12   connector;

13   said connected mode further comprising a physical

14   connection between the first and the second

15   connectors;

16   wherein the switch further comprises a manually

17   activated handle connected to a bracket which

18   holds the first connector; and

19   wherein the switch further comprises a housing which

20   holds the second connector as well as an outlet

21   connector.

22   16.   The switch of claim 15, wherein the bracket is

23 mounted on a track.

24   17.   The switch of claim 16, wherein the handle is a

25 push/pull type mounted parallel to the track.

1   18. The switch of claim 15, wherein each of the first

2   and second connectors is an industry standard type.

3
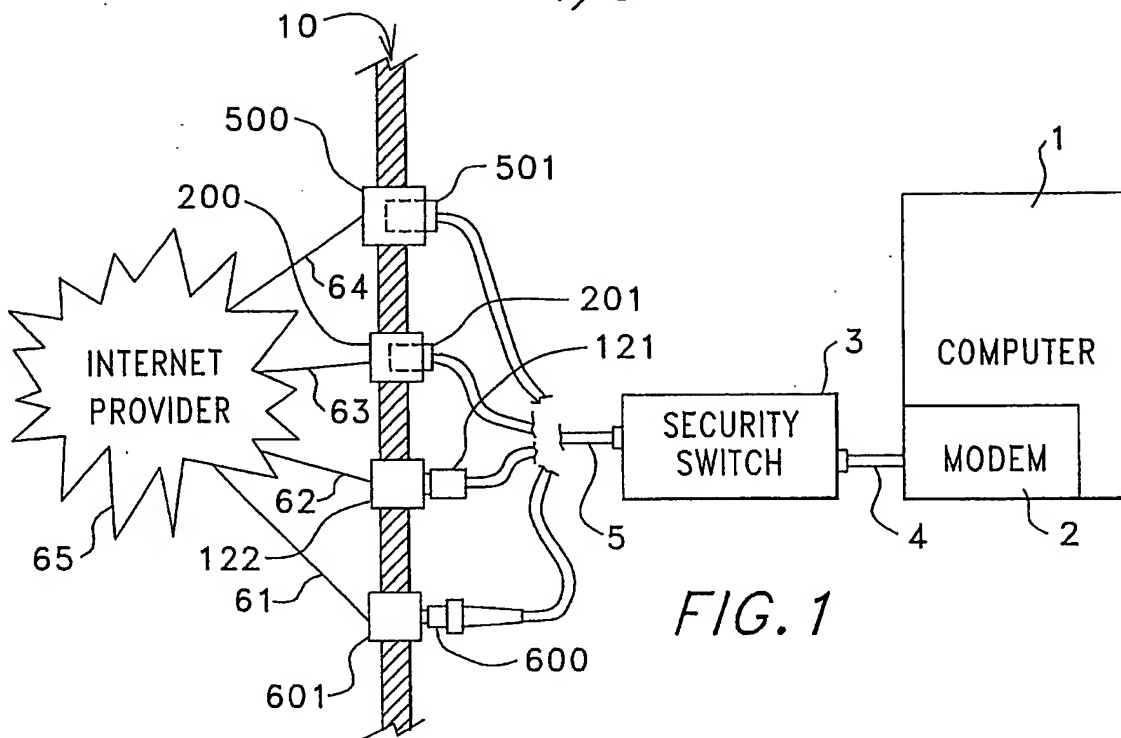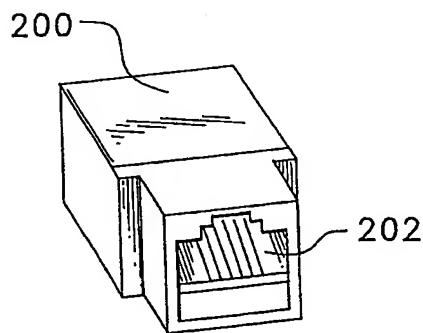
FIG. 1

FIG.2A
(PRIOR ART)
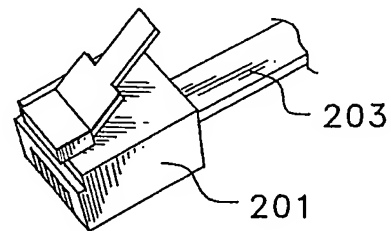
FIG.2B
(PRIOR ART)
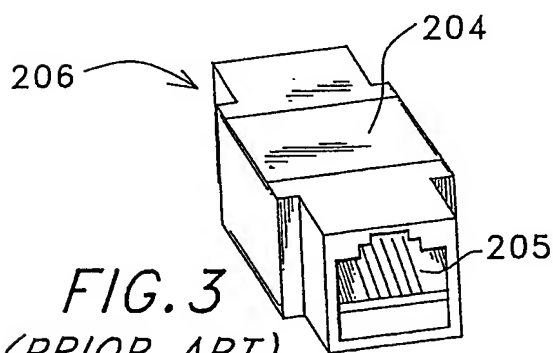
FIG.3
(PRIOR ART)
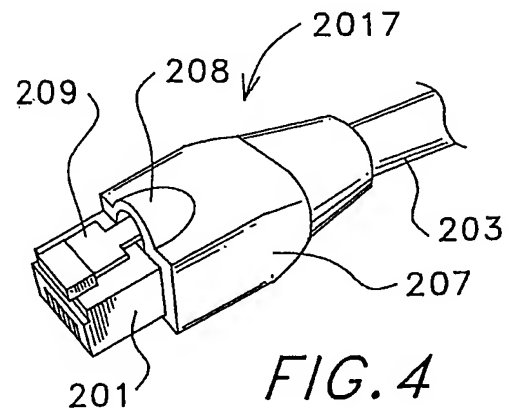
FIG.4
(PRIOR ART)
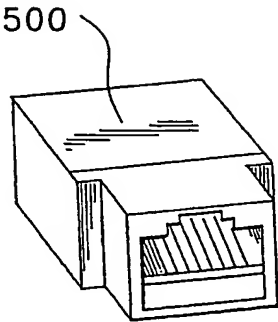
FIG.5A
(PRIOR ART)
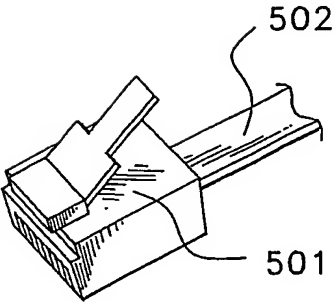
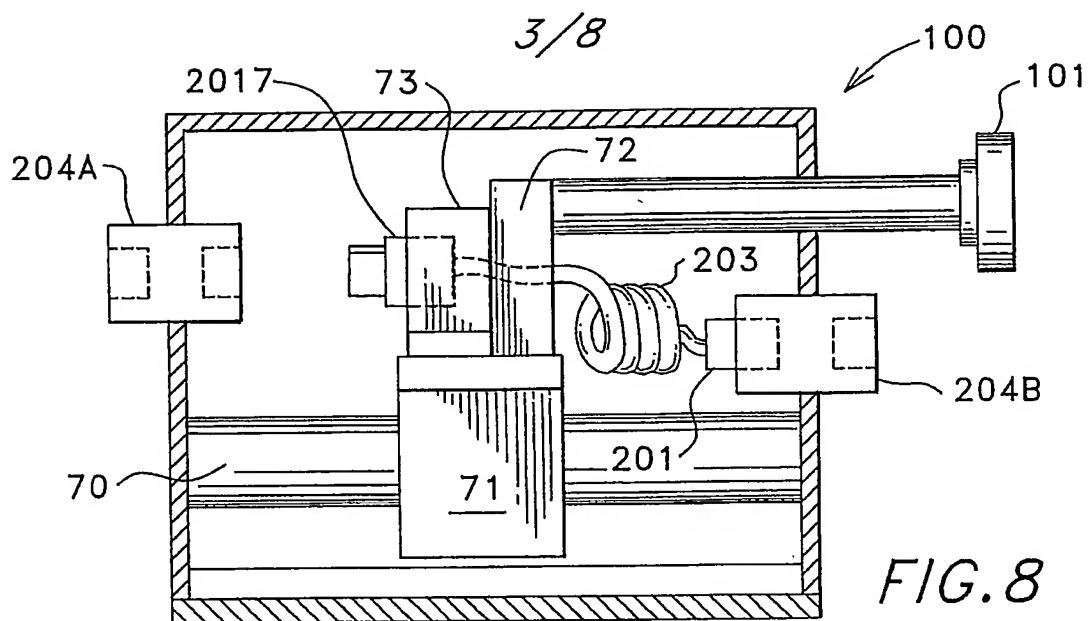FIG.5B
(PRIOR ART)
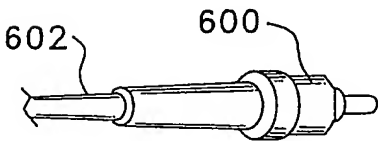
FIG.6A
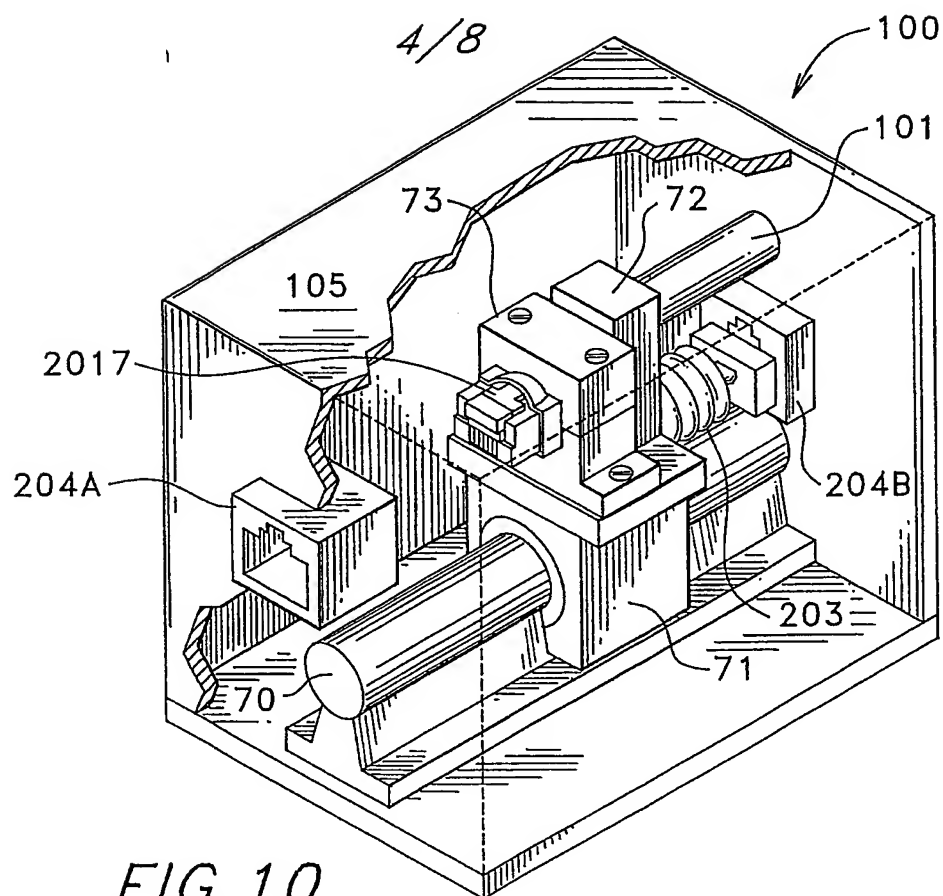(PRIOR ART)
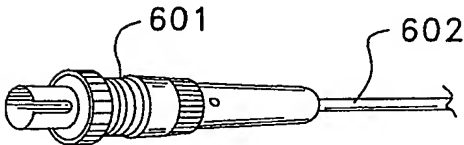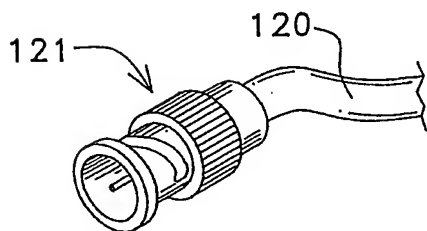
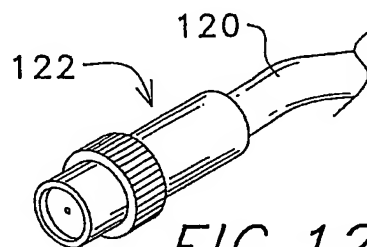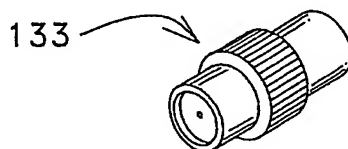FIG.6B
(PRIOR ART)

FIG.7

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FIG.8

FIG.9

FIG.11
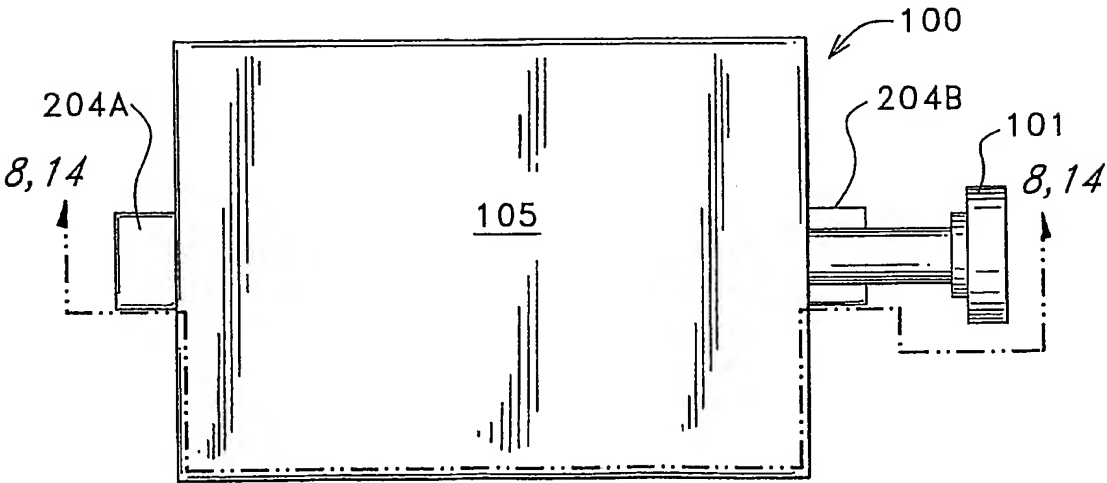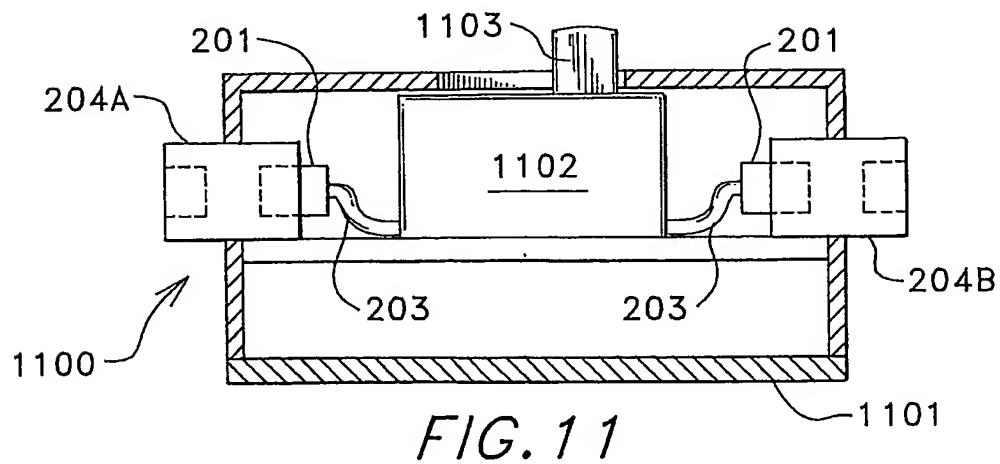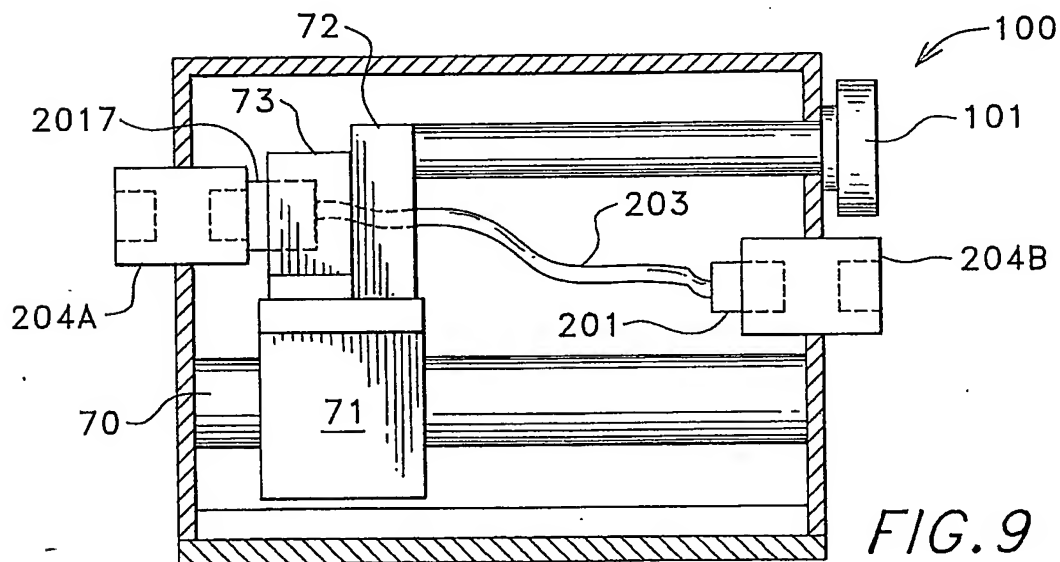
FIG.10

FIG.12A
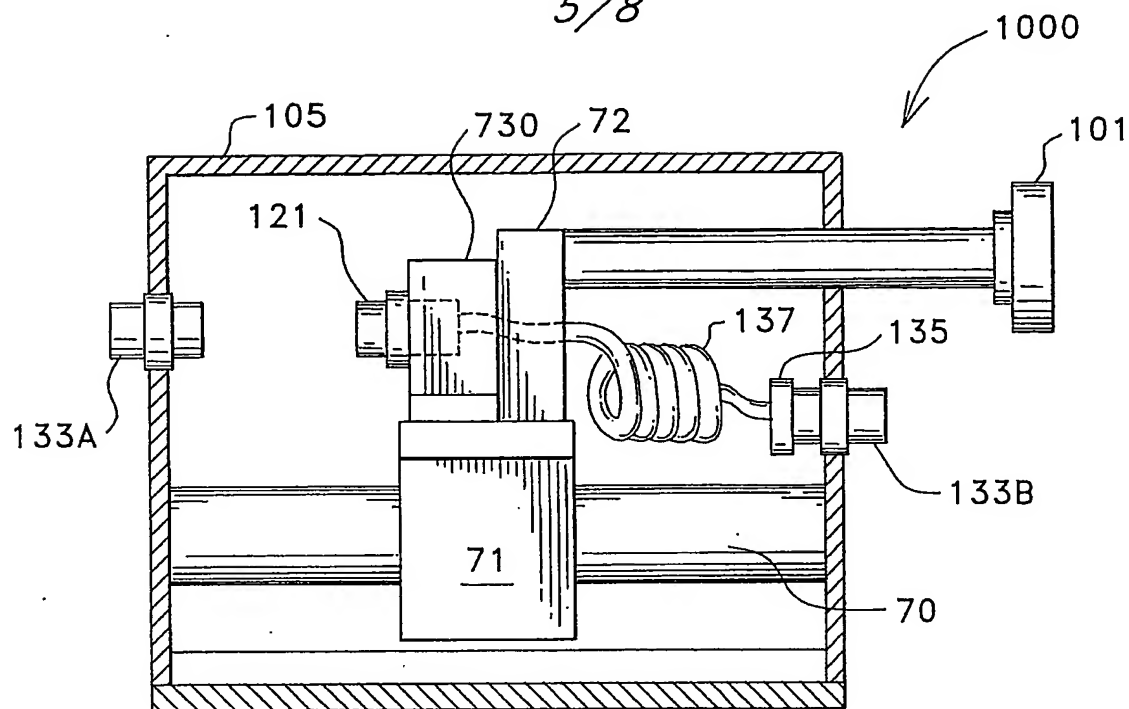(PRIOR ART)
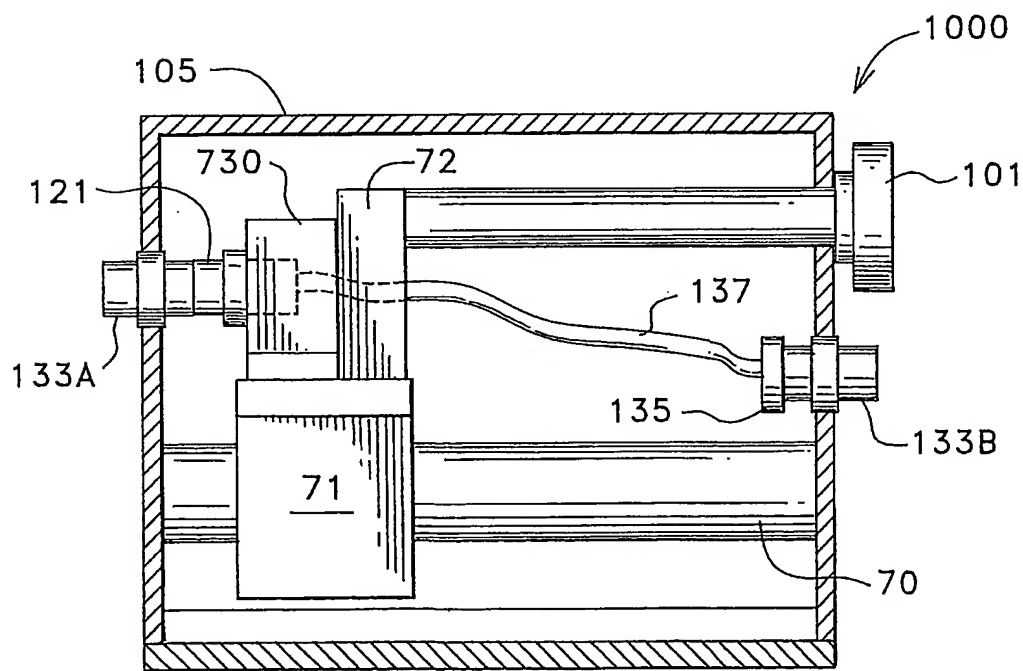
FIG.12B
(PRIOR ART)

FIG.13
(PRIOR ART)

5/8

FIG. 14

FIG. 15

6/8

1000

105

101

730

72

121

133B

133A

137

70

71

FIG.16

7300

1050

2000

135

137

133B

133A

101

70

72

204A

2017

203

204B

FIG.17

FIG. 18

8/8

FIG.19

FIG.20